

SEQUENCE SUBMISSION

SEQ ID NO: 1 provides primate IL-1 δ nucleotide sequence.
 SEQ ID NO: 2 provides primate IL-1 δ polypeptide sequence.
 5 SEQ ID NO: 3 provides primate IL-1 ϵ nucleotide sequence.
 SEQ ID NO: 4 provides primate IL-1 ϵ polypeptide sequence.
 SEQ ID NO: 5 provides primate IL-1 α polypeptide sequence.
 SEQ ID NO: 6 provides primate IL-1 β polypeptide sequence.
 SEQ ID NO: 7 provides primate IL-1RA polypeptide sequence.
 10 SEQ ID NO: 8 provides rodent IL-1 γ (IGIF) polypeptide sequence.
 SEQ ID NO: 9 provides primate IL-1 γ (IGIF) polypeptide sequence.
 SEQ ID NO: 10 provides rodent IL-1 ϵ polypeptide sequence.
 SEQ ID NO: 11 provides rodent IL-1 δ polypeptide sequence.
 SEQ ID NO: 12 provides primate IL-1R6 nucleotide sequence.
 15 SEQ ID NO: 13 provides primate IL-1R6 polypeptide sequence.
 SEQ ID NO: 14 provides rodent IL-1R6 nucleotide sequence.
 SEQ ID NO: 15 provides rodent IL-1R6 polypeptide sequence.

20 <110> Debets, Johannes E.M.A.
 Timans, Jacqueline C.
 Bazan, J. Fernando
 Kastelein, Robert A.

25 <120> Mammalian Cytokines; Receptors; Related Reagents and
 Methods
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35 <170> PatentIn Ver. 2.1
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 Homo sapiens

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 Lys Val Leu Tyr Leu His Asn Asn Gln Leu Leu Ala Gly Gly Leu His
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gca ggg aag gtc att aaa ggt gaa gag atc agc gtg gtc ccc aat cgg 201
 Ala Gly Lys Val Ile Lys Gly Glu Glu Ile Ser Val Val Pro Asn Arg
 35 40 45

5 tgg ctg gat gcc agc ctg tcc ccc gtc atc ctg ggt gtc cag ggt gga 249
 Trp Leu Asp Ala Ser Leu Ser Pro Val Ile Leu Gly Val Gln Gly Gly
 50 55 60

10 agc cag tgc ctg tca tgt ggg gtg ggg cag gag ccg act cta aca cta 297
 Ser Gln Cys Leu Ser Cys Gly Val Gly Gln Glu Pro Thr Leu Thr Leu
 65 70 75 80

15 gag cca gtg aac atc atg gag ctc tat ctt ggt gcc aag gaa tcc aag 345
 Glu Pro Val Asn Ile Met Glu Leu Tyr Leu Gly Ala Lys Glu Ser Lys
 85 90 95

20 agc ttc acc ttc tac cgg cgg gac atg ggg ctc acc tcc agc ttc gag 393
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25 tcg gct gcc tac ccg gcc tgg ttc ctg tgc acg gtg cct gaa gcc gat 441
 Ser Ala Ala Tyr Pro Gly Trp Phe Leu Cys Thr Val Pro Glu Ala Asp
 115 120 125

30 cag cct gtc aga ctc acc cag ctt ccc gag aat ggt gcc tgg aat gcc 489
 Gln Pro Val Arg Leu Thr Gln Leu Pro Glu Asn Gly Gly Trp Asn Ala
 130 135 140

35 ccc atc aca gac ttc tac ttc cag cag tgt gac tagggcaacg tgcacccag 542
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 145 150 155

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 Homo sapiens

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 Tyr Pro Glu Ala Leu Glu Gln Gly Arg Gly Asp Pro Ile Tyr Leu Gly
 65 70 75
 5 atc cag aat cca gaa atg tgt ttg tat tgt gag aag gtt gga gaa cag 348
 Ile Gln Asn Pro Glu Met Cys Leu Tyr Cys Glu Lys Val Gly Glu Gln
 80 85 90
 10 ccc aca ttg cag cta aaa gag cag aag atc atg gat ctg tat ggc caa 396
 Pro Thr Leu Gln Leu Lys Glu Gln Lys Ile Met Asp Leu Tyr Gly Gln
 95 100 105 110
 15 ccc gag ccc gtg aaa ccc ttc ctt ttc tac cgt gcc aag act ggt agg 444
 Pro Glu Pro Val Lys Pro Phe Leu Phe Tyr Arg Ala Lys Thr Gly Arg
 115 120 125
 acc tcc acc ctt gag tct gtg gcc ttc ccg gac tgg ttc att gcc tcc 492
 Thr Ser Thr Leu Glu Ser Val Ala Phe Pro Asp Trp Phe Ile Ala Ser
 130 135 140
 20 tcc aag aga gac cag ccc atc att ctg act tca gaa ctt ggg aag tca 540
 Ser Lys Arg Asp Gln Pro Ile Ile Leu Thr Ser Glu Leu Gly Lys Ser
 145 150 155
 25 tac aac act gcc ttt gaa tta aat ata aat gac tgaactcagc ctgaggtgg 593
 Tyr Asn Thr Ala Phe Glu Leu Asn Ile Asn Asp
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 30 cagcttggtc ttgtcttaa agtttctggt tcccaatgtg ttttcgtcta cattttctta 653
 gtgtcatttt cagctggtg ctgagacagg,ggcaaggctg ctgttatcat ctcattttat 713
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 35 gagagctggg tggataaagg ctgtcctctc aagctggtgc tgtgttagcc acaaggcacc 833
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 40 gaagatgctt cagagctcat gcgcgttacc cagatggcca tgactagcac agagctgacc 953
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35 40 45

Asp Ser Val Thr Pro Val Thr Val Ala Val Ile Thr Cys Lys Tyr Pro
50 55 60

5 Glu Ala Leu Glu Gln Gly Arg Gly Asp Pro Ile Tyr Leu Gly Ile Gln
65 70 75 80

10 Asn Pro Glu Met Cys Leu Tyr Cys Glu Lys Val Gly Glu Gln Pro Thr
85 90 95

Leu Gln Leu Lys Glu Gln Lys Ile Met Asp Leu Tyr Gly Gln Pro Glu
100 105 110

15 Pro Val Lys Pro Phe Leu Phe Tyr Arg Ala Lys Thr Gly Arg Thr Ser
115 120 125

Thr Leu Glu Ser Val Ala Phe Pro Asp Trp Phe Ile Ala Ser Ser Lys
130 135 140

20 Arg Asp Gln Pro Ile Ile Leu Thr Ser Glu Leu Gly Lys Ser Tyr Asn
145 150 155 160

25 Thr Ala Phe Glu Leu Asn Ile Asn Asp
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Homo sapiens

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45 Asn Leu Asp Glu Ala Val Lys Phe Asp Met Gly Ala Tyr Lys Ser Ser
35 40 45

Lys Asp Asp Ala Lys Ile Thr Val Ile Leu Arg Ile Ser Lys Thr Gln
50 55 60

50 Leu Tyr Val Thr Ala Gln Asp Glu Asp Gln Pro Val Leu Leu Lys Glu
65 70 75 80

55 Met Pro Glu Ile Pro Lys Thr Ile Thr Gly Ser Glu Thr Asn Leu Leu
85 90 95

Phe Phe Trp Glu Thr His Gly Thr Lys Asn Tyr Phe Thr Ser Val Ala
100 105 110

60 His Pro Asn Leu Phe Ile Ala Thr Lys Gln Asp Tyr Trp Val Cys Leu
115 120 125

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 Homo sapiens

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 35 40 45
 Gly Glu Glu Ser Asn Asp Lys Ile Pro Val Ala Leu Gly Leu Lys Glu
 50 55 60

30 Lys Asn Leu Tyr Leu Ser Cys Val Leu Lys Asp Asp Lys Pro Thr Leu
 65 70 75 80

35 Gln Leu Glu Ser Val Asp Pro Lys Asn Tyr Pro Lys Lys Lys Met Glu
 85 90 95
 Lys Arg Phe Val Phe Asn Lys Ile Glu Ile Asn Asn Lys Leu Glu Phe
 100 105 110

40 Glu Ser Ala Gln Phe Pro Asn Trp Tyr Ile Ser Thr Ser Gln Ala Glu
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 Homo sapiens

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 5 Pro Asn Val Asn Leu Glu Glu Lys Ile Asp Val Val Pro Ile Glu Pro
 35 40 45
 His Ala Leu Phe Leu Gly Ile His Gly Gly Lys Met Cys Leu Ser Cys
 50 55 60
 10 Val Lys Ser Gly Asp Glu Thr Arg Leu Gln Leu Glu Ala Val Asn Ile
 65 70 75 80
 15 Thr Asp Leu Ser Glu Asn Arg Lys Gln Asp Lys Arg Phe Ala Phe Ile
 85 90 95
 Arg Ser Asp Ser Gly Pro Thr Thr Ser Phe Glu Ser Ala Ala Cys Pro
 100 105 110
 20 Gly Trp Phe Leu Cys Thr Ala Met Glu Ala Asp Gln Pro Val Ser Leu
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 Thr Asn Met Pro Asp Glu Gly Val Met Val Thr Lys Phe Tyr Phe Gln
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 45 Thr Asp Ile Asp Gln Ser Ala Ser Glu Pro Gln Thr Arg Leu Ile Ile
 35 40 45
 Tyr Met Tyr Lys Asp Ser Glu Val Arg Gly Leu Ala Val Thr Leu Ser
 50 55 60
 Val Lys Asp Ser Lys Met Ser Thr Leu Ser Cys Lys Asn Lys Ile Ile
 65 70 75 80
 55 Ser Phe Glu Glu Met Asp Pro Pro Glu Asn Ile Asp Asp Ile Gln Ser
 85 90 95
 Asp Leu Ile Phe Phe Gln Lys Arg Val Pro Gly His Asn Lys Met Glu
 100 105 110
 60 Phe Glu Ser Ser Leu Tyr Glu Gly His Phe Leu Ala Cys Gln Lys Glu

- 115 120 125
- Asp Asp Ala Phe Lys Leu Ile Leu Lys Lys Lys Asp Glu Asn Gly Asp
130 135 140
- 5 Lys Ser Val Met Phe Thr Leu Thr Asn Leu His Gln Ser
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Homo sapiens
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20 25 30
- 25 Met Thr Asp Ser Asp Cys Arg Asp Asn Ala Pro Arg Thr Ile Phe Ile
35 40 45
- Ile Ser Met Tyr Lys Asp Ser Gln Pro Arg Gly Met Ala Val Thr Ile
50 55 60
- 30 Ser Val Lys Cys Glu Lys Ile Ser Thr Leu Ser Cys Glu Asn Lys Ile
65 70 75 80
- 35 Ile Ser Phe Lys Glu Met Asn Pro Pro Asp Asn Ile Lys Asp Thr Lys
85 90 95
- Ser Asp Ile Ile Phe Phe Gln Arg Ser Val Pro Gly His Asp Asn Lys
100 105 110
- 40 Met Gln Phe Glu Ser Ser Ser Tyr Glu Gly Tyr Phe Leu Ala Cys Glu
115 120 125
- Lys Glu Arg Asp Leu Phe Lys Leu Ile Leu Lys Lys Glu Asp Glu Leu
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- Gly Asp Arg Ser Ile Met Phe Thr Val Gln Asn Glu Asp
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- 50 <210> 10
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Ile Thr Asp Phe Tyr Phe Gln Gln Cys Asp
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Homo sapiens

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Val Thr Ala Ser Gln Gly Cys Lys Asp Ile Phe Met Lys Asn Glu Ile Leu
20 25 30

35 tca gca agc cag cct ttt gct ttt aat tgt aca ttc cct ccc ata aca 144
Ser Ala Ser Gln Pro Phe Ala Phe Asn Cys Thr Phe Pro Pro Ile Thr
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tct ggg gaa gtc agt gta aca tgg tat aaa aat tct agc aaa atc cca 192
Ser Gly Glu Val Ser Val Thr Trp Tyr Lys Asn Ser Ser Lys Ile Pro
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40 gtg tcc aaa atc ata cag tct aga att cac cag gac gag act tgg att 240
Val Ser Lys Ile Ile Gln Ser Arg Ile His Gln Asp Glu Thr Trp Ile
65 70 75 80

45 ttg ttt ctc ccc atg gaa tgg ggg gac tca gga gtc tac caa tgt gtt 288
Leu Phe Leu Pro Met Glu Trp Gly Asp Ser Gly Val Tyr Gln Cys Val
85 90 95

50 ata aag ggt aga gac agc tgt cat aga ata cat gta aac cta act gtt 336
Ile Lys Gly Arg Asp Ser Cys His Arg Ile His Val Asn Leu Thr Val
100 105 110

55 ttt gaa aaa cat tgg tgt gac act tcc ata ggt ggt tta cca aat tta 384
Phe Glu Lys His Trp Cys Asp Thr Ser Ile Gly Glu Leu Pro Asn Leu
115 120 125

tca gat gag tac aag caa ata tta cat ctt gga aaa gat gat agt ctc 432
Ser Asp Glu Tyr Lys Gln Ile Leu His Leu Gly Lys Asp Asp Ser Leu
130 135 140

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10	gaa	acc	agg	ctt	ttg	gtg	agc	aat	gtc	tcg	gca	gag	gac	aga	ggg	aac	576
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25	agt	gtc	cct	aaa	atc	att	tat	cca	aaa	aat	cat	tca	att	gaa	gta	cag	720
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35	aat	aca	aat	cta	cga	tgc	tgg	aga	gtc	aat	aac	act	ttg	gtg	gat	gat	816
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40	tac	tat	gat	gaa	tcc	aaa	cga	atc	aga	gaa	ggg	gtg	gaa	acc	cat	gtc	864
	Tyr	Tyr	Asp	Glu	Ser	Lys	Arg	Ile	Arg	Glu	Gly	Val	Glu	Thr	His	Val	
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45	tct	ttt	cgg	gaa	cat	aat	ttg	tac	aca	gta	aac	atc	acc	ttc	ttg	gaa	912
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	Val	Lys	Met	Glu	Asp	Tyr	Gly	Leu	Pro	Phe	Met	Cys	His	Ala	Gly	Val	
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65	gtg	tac	ata	tac	aac	att	ttt	aag	atc	gac	att	gtt	ctt	tgg	tat	cga	1104
	Val	Tyr	Ile	Tyr	Asn	Ile	Phe	Lys	Ile	Asp	Ile	Val	Leu	Trp	Tyr	Arg	
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	Ser	Ala	Phe	His	Ser	Thr	Glu	Thr	Ile	Val	Asp	Gly	Lys	Leu	Tyr	Asp	
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75	gcc	tat	gtc	tta	tac	ccc	aag	ccc	cac	aag	gaa	agc	cag	agg	cat	gcc	1200
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	Cys Gly Tyr Lys Leu Phe Ile Phe Gly Arg Asp Glu Phe Pro Gly Gln	420	425	430	
10	gcc gtg gcc aat gtc atc gat gaa aac gtt aag ctg tgc agg agg ctg			1344	
	Ala Val Ala Asn Val Ile Asp Glu Asn Val Lys Leu Cys Arg Arg Leu	435	440	445	
15	att gtc att gtg gtc ccc gaa tcg ctg ggc ttt ggc ctg ttg aag aac			1392	
	Ile Val Ile Val Val Pro Glu Ser Leu Gly Phe Gly Leu Leu Lys Asn	450	455	460	
20	ctg tca gaa gaa caa atc gcg gtc tac agt gcc ctg atc cag gac ggg			1440	
	Leu Ser Glu Glu Gln Ile Ala Val Tyr Ser Ala Leu Ile Gln Asp Gly	465	470	475	480
	atg aag gtt att ctc att gag ctg gag gaa atc gag gac tac aca gtc			1488	
25	Met Lys Val Ile Leu Ile Glu Leu Glu Lys Ile Glu Asp Tyr Thr Val	485	490	495	
	atg cca gag tca att cag tac atc aaa cag aag cat ggt gcc atc cgg			1536	
30	Met Pro Glu Ser Ile Gln Tyr Ile Lys Gln Lys His Gly Ala Ile Arg	500	505	510	
	tgg cat ggg gac ttc acg gag cag tca cag tgt atg aag acc aag ttt			1584	
	Trp His Gly Asp Phe Thr Glu Gln Ser Gln Cys Met Lys Thr Lys Phe	515	520	525	
35	tgg aag aca gtg aga tac cac atg cgg ccc aga agg tgt cgg cgg ttt			1632	
	Trp Lys Thr Val Arg Tyr His Met Pro Pro Arg Arg Cys Arg Pro Phe	530	535	540	
40	ctc cgg tcc acg tgc cgc agc aca cac ctc tgt acc gca cgg cag gcc			1680	
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	Homo sapiens				
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	20 25 30				
60	Ser Ala Ser Gln Pro Phe Ala Phe Asn Cys Thr Phe Pro Pro Ile Thr				

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5	Val	Ser	Lys	Ile	Ile	Gln	Ser	Arg	Ile	His	Gln	Asp	Glu	Thr	Trp	Ile
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10	Leu	Phe	Leu	Pro	Met	Glu	Trp	Gly	Asp	Ser	Gly	Val	Tyr	Gln	Cys	Val
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	Ile	Lys	Gly	Arg	Asp	Ser	Cys	His	Arg	Ile	His	Val	Asn	Leu	Thr	Val
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15	Phe	Glu	Lys	His	Trp	Cys	Asp	Thr	Ser	Ile	Gly	Gly	Leu	Pro	Asn	Leu
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	130						135					140				
20	Thr	Cys	His	Leu	His	Phe	Pro	Lys	Ser	Cys	Val	Leu	Gly	Pro	Ile	Lys
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25	Trp	Tyr	Lys	Asp	Cys	Asn	Glu	Ile	Lys	Gly	Glu	Arg	Phe	Thr	Val	Leu
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	Glu	Thr	Arg	Leu	Leu	Val	Ser	Asn	Val	Ser	Ala	Glu	Asp	Arg	Gly	Asn
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30	Tyr	Ala	Cys	Gln	Ala	Ile	Leu	Thr	His	Ser	Gly	Lys	Gln	Tyr	Glu	Val
			195					200					205			
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40	Leu	Gly	Thr	Thr	Leu	Ile	Val	Asp	Cys	Asn	Val	Thr	Asp	Thr	Lys	Asp
					245					250					255	
	Asn	Thr	Asn	Leu	Arg	Cys	Trp	Arg	Val	Asn	Asn	Thr	Leu	Val	Asp	Asp
				260					265					270		
45	Tyr	Tyr	Asp	Glu	Ser	Lys	Arg	Ile	Arg	Glu	Gly	Val	Glu	Thr	His	Val
			275					280					285			
	Ser	Phe	Arg	Glu	His	Asn	Leu	Tyr	Thr	Val	Asn	Ile	Thr	Phe	Leu	Glu
	290						295					300				
50	Val	Lys	Met	Glu	Asp	Tyr	Gly	Leu	Pro	Phe	Met	Cys	His	Ala	Gly	Val
	305					310					315					320
55	Ser	Thr	Ala	Tyr	Ile	Ile	Leu	Gln	Leu	Pro	Ala	Pro	Asp	Phe	Arg	Ala
					325					330					335	
	Tyr	Leu	Ile	Gly	Gly	Leu	Ile	Ala	Leu	Val	Ala	Val	Ala	Val	Ser	Val
				340					345					350		
60	Val	Tyr	Ile	Tyr	Asn	Ile	Phe	Lys	Ile	Asp	Ile	Val	Leu	Trp	Tyr	Arg
			355					360						365		

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 5 Ala Tyr Val Leu Tyr Pro Lys Pro His Lys Glu Ser Gln Arg His Ala
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 405 410 415
 10 Cys Gly Tyr Lys Leu Phe Ile Phe Gly Arg Asp Glu Phe Pro Gly Gln
 420 425 430
 15 Ala Val Ala Asn Val Ile Asp Glu Asn Val Lys Leu Cys Arg Arg Leu
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 Ile Val Ile Val Val Pro Glu Ser Leu Gly Phe Gly Leu Leu Lys Asn
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 20 Leu Ser Glu Glu Gln Ile Ala Val Tyr Ser Ala Leu Ile Gln Asp Gly
 465 470 475 480
 Met Lys Val Ile Leu Ile Glu Leu Glu Lys Ile Glu Asp Tyr Thr Val
 485 490 495
 25 Met Pro Glu Ser Ile Gln Tyr Ile Lys Gln Lys His Gly Ala Ile Arg
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 30 Trp His Gly Asp Phe Thr Glu Gln Ser Gln Cys Met Lys Thr Lys Phe
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	Leu	Phe	Val	Ala	Ala	Gly	Asn	Cys	Thr	Asp	Val	Tyr	Met	His	His	Glu	
				20					25					30			
5	atg	att	tca	gag	ggc	cag	cct	ttc	ccc	ttc	aac	tgc	aca	tac	cct	cca	144
	Met	Ile	Ser	Glu	Gly	Gln	Pro	Phe	Pro	Phe	Asn	Cys	Thr	Tyr	Pro	Pro	
			35				40					45					
10	gta	aca	aac	ggg	gca	gtg	aat	ctg	aca	tgg	cat	aga	aca	ccc	agt	aag	192
	Val	Thr	Asn	Gly	Ala	Val	Asn	Leu	Thr	Trp	His	Arg	Thr	Pro	Ser	Lys	
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15	agc	cca	atc	tcc	atc	aac	aga	cac	gtt	aga	att	cac	cag	gac	cag	tcc	240
	Ser	Pro	Ile	Ser	Ile	Asn	Arg	His	Val	Arg	Ile	His	Gln	Asp	Gln	Ser	
			65			70					75				80		
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	Trp	Ile	Leu	Phe	Leu	Pro	Leu	Ala	Leu	Glu	Asp	Ser	Gly	Ile	Tyr	Gln	
					85					90				95			
25	tgt	gtt	ata	aag	gat	gcc	cac	agc	tgt	tac	cga	ata	gct	ata	aac	cta	336
	Cys	Val	Ile	Lys	Asp	Ala	His	Ser	Cys	Tyr	Arg	Ile	Ala	Ile	Asn	Leu	
					100				105					110			
30	acc	gtt	ttt	aga	aaa	cac	tgg	tgc	gac	tct	tcc	aac	gaa	gag	agt	tcc	384
	Thr	Val	Phe	Arg	Lys	His	Trp	Cys	Asp	Ser	Ser	Asn	Glu	Glu	Ser	Ser	
					115			120					125				
35	ata	aat	tcc	tca	gat	gag	tac	cag	caa	tgg	tta	ccc	ata	gga	aaa	tcg	432
	Ile	Asn	Ser	Ser	Asp	Glu	Tyr	Gln	Gln	Trp	Leu	Pro	Ile	Gly	Lys	Ser	
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40	ggc	agt	ctg	acg	tgc	cat	ctc	tac	ttc	cca	gag	agc	tgt	gtt	ttg	gat	480
	Gly	Ser	Leu	Thr	Cys	His	Leu	Tyr	Phe	Pro	Glu	Ser	Cys	Val	Leu	Asp	
			145			150					155				160		
45	tca	ata	aag	tgg	tat	aag	ggt	tgt	gaa	gag	att	aaa	gtg	agc	aag	aag	528
	Ser	Ile	Lys	Trp	Tyr	Lys	Gly	Cys	Glu	Glu	Ile	Lys	Val	Ser	Lys	Lys	
					165				170					175			
50	ttt	tgc	cct	aca	gga	aca	aag	ctt	ctt	ggt	aac	aac	atc	gac	gtg	gag	576
	Phe	Cys	Pro	Thr	Gly	Thr	Lys	Leu	Leu	Val	Asn	Asn	Ile	Asp	Val	Glu	
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55	gat	agt	ggg	agc	tat	gca	tgc	tca	gcc	aga	ctg	aca	cac	ttg	ggg	aga	624
	Asp	Ser	Gly	Ser	Tyr	Ala	Cys	Ser	Ala	Arg	Leu	Thr	His	Leu	Gly	Arg	
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	Ile	Phe	Thr	Val	Arg	Asn	Tyr	Ile	Ala	Val	Asn	Thr	Lys	Glu	Val	Gly	
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65	tct	gga	gga	agg	atc	cct	aac	atc	acg	tat	cca	aaa	aac	aac	tcc	att	720
	Ser	Gly	Gly	Arg	Ile	Pro	Asn	Ile	Thr	Tyr	Pro	Lys	Asn	Asn	Ser	Ile	
				225		230					235				240		
70	gaa	gtt	caa	ctt	ggc	tcc	acc	ctc	att	gtg	gac	tgc	aat	ata	aca	gac	768
	Glu	Val	Gln	Leu	Gly	Ser	Thr	Leu	Ile	Val	Asp	Cys	Asn	Ile	Thr	Asp	
					245					250				255			
75	acg	aag	gag	aat	acg	aac	ctc	aga	tgc	tgg	cga	gtt	aac	aac	acc	ctg	816
	Thr	Lys	Glu	Asn	Thr	Asn	Leu	Arg	Cys	Trp	Arg	Val	Asn	Asn	Thr	Leu	

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10	acc aat ctg tct ctg agg aat cac att ctg tac aca gtg aac ata aca Thr Asn Leu Ser Leu Arg Asn His Ile Leu Tyr Thr Val Asn Ile Thr	290 295	300	912
15	ttc tta gaa gtg aaa atg gag gac tac ggc cat cct ttc aca tgc cac Phe Leu Glu Val Lys Met Glu Asp Tyr Gly His Pro Phe Thr Cys His	305 310	315 320	960
20	gct gcg gtg tcc gca gcc tac atc att ctg aaa cgc cca gct cca gac Ala Ala Val Ser Ala Ala Tyr Ile Ile Leu Lys Arg Pro Ala Pro Asp	325 330	335	1008
25	ttc cgg gct tac ctc ata gga ggt ctc atg gct ttc cta ctt ctg gcc Phe Arg Ala Tyr Leu Ile Gly Gly Leu Met Ala Phe Leu Leu Leu Ala	340 345	350	1056
30	gtg tcc att ctg tac atc tac aac acc ttt aag gtc gac atc gtg ctt Val Ser Ile Leu Tyr Ile Tyr Asn Thr Phe Lys Val Asp Ile Val Leu	355 360	365	1104
35	tgg tat agg agt acc ttc cac act gcc cag gct cca gat gac gag aag Trp Tyr Arg Ser Thr Phe His Thr Ala Gln Ala Pro Asp Asp Glu Lys	370 375	380	1152
40	ctg tat gat gcc tat gtc tta tac ccc aag tac cca aga gaa agc cag Leu Tyr Asp Ala Tyr Val Leu Tyr Pro Lys Tyr Pro Arg Glu Ser Gln	385 390	395	1200
45	ggc cat gat gtg gac aca ctg gtg ttg aag atc ttg ccc gag gtg ctg Gly His Asp Val Asp Thr Leu Val Leu Lys Ile Leu Pro Glu Val Leu	405 410	415	1248
50	gag aaa cag tgt gga tat aag tta ttc ata ttt ggc agg gat gaa ttc Glu Lys Gln Cys Gly Tyr Lys Leu Phe Ile Phe Gly Arg Asp Glu Phe	420 425	430	1296
55	cct gga caa gct gtg gcc agc gtc att gat gaa aac att aag ctg tgt Pro Gly Gln Ala Val Ala Ser Val Ile Asp Glu Asn Ile Lys Leu Cys	435 440	445	1344
60	agg agg ctg atg gtc ctc gtg gca cca gag aca tcc agc ttc agc ttt Arg Arg Leu Met Val Leu Val Ala Pro Glu Thr Ser Ser Phe Ser Phe	450 455	460	1392
65	ctg aag aac ttg act gaa gaa caa atc gct gtc tac aat gcc ctc gtc Leu Lys Asn Leu Thr Glu Glu Gln Ile Ala Val Tyr Asn Ala Leu Val	465 470	475	1440
70	cag gac gcc atg aag gtc att ctg att gaa ctg gag aga gtc aag gac Gln Asp Gly Met Lys Val Ile Leu Ile Glu Leu Glu Arg Val Lys Asp	485 490	495	1488
75	tac agc acc atg ccc gag tcc att cag tac atc cga cag aag cac ggg Tyr Ser Thr Met Pro Glu Ser Ile Gln Tyr Ile Arg Gln Lys His Gly	500 505	510	1536

	gcc atc cag tgg gat ggg gac ttc aca gag cag gca cag tgc gcc aag	1584
	Ala Ile Gln Trp Asp Gly Asp Phe Thr Glu Gln Ala Gln Cys Ala Lys	
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5	acg aaa ttc tgg aag aaa gtg aga tat cat atg cca ccc agg agg tac	1632
	Thr Lys Phe Trp Lys Lys Val Arg Tyr His Met Pro Pro Arg Arg Tyr	
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10	ccg gca tct ccc ccc gtc cag ctg cta gga cac aca ccc cgc ata cca	1680
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35	Val Thr Asn Gly Ala Val Asn Leu Thr Trp His Arg Thr Pro Ser Lys	
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	Ser Pro Ile Ser Ile Asn Arg His Val Arg Ile His Gln Asp Gln Ser	
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40	Trp Ile Leu Phe Leu Pro Leu Ala Leu Glu Asp Ser Gly Ile Tyr Gln	
	85 90 95	
45	Cys Val Ile Lys Asp Ala His Ser Cys Tyr Arg Ile Ala Ile Asn Leu	
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	Gly Ser Leu Thr Cys His Leu Tyr Phe Pro Glu Ser Cys Val Leu Asp	
	145 150 155 160	
55	Ser Ile Lys Trp Tyr Lys Gly Cys Glu Glu Ile Lys Val Ser Lys Lys	
	165 170 175	
60	Phe Cys Pro Thr Gly Thr Lys Leu Leu Val Asn Asn Ile Asp Val Glu	
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Asp Ser Gly Ser Tyr Ala Cys Ser Ala Arg Leu Thr His Leu Gly Arg
 195 200 205
 5 Ile Phe Thr Val Arg Asn Tyr Ile Ala Val Asn Thr Lys Glu Val Gly
 210 215 220
 Ser Gly Gly Arg Ile Pro Asn Ile Thr Tyr Pro Lys Asn Asn Ser Ile
 225 230 235 240
 10 Glu Val Gln Leu Gly Ser Thr Leu Ile Val Asp Cys Asn Ile Thr Asp
 245 250 255
 Thr Lys Glu Asn Thr Asn Leu Arg Cys Trp Arg Val Asn Asn Thr Leu
 260 265 270
 15 Val Asp Asp Tyr Tyr Asn Asp Phe Lys Arg Ile Gln Glu Gly Ile Glu
 275 280 285
 Thr Asn Leu Ser Leu Arg Asn His Ile Leu Tyr Thr Val Asn Ile Thr
 290 295 300
 20 Phe Leu Glu Val Lys Met Glu Asp Tyr Gly His Pro Phe Thr Cys His
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 25 Ala Ala Val Ser Ala Ala Tyr Ile Ile Leu Lys Arg Pro Ala Pro Asp
 325 330 335
 Phe Arg Ala Tyr Leu Ile Gly Gly Leu Met Ala Phe Leu Leu Leu Ala
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 35 Trp Tyr Arg Ser Thr Phe His Thr Ala Gln Ala Pro Asp Asp Glu Lys
 370 375 380
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 40 Gly His Asp Val Asp Thr Leu Val Leu Lys Ile Leu Pro Glu Val Leu
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 Glu Lys Gln Cys Gly Tyr Lys Leu Phe Ile Phe Gly Arg Asp Glu Phe
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 45 Pro Gly Gln Ala Val Ala Ser Val Ile Asp Glu Asn Ile Lys Leu Cys
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 50 Arg Arg Leu Met Val Leu Val Ala Pro Glu Thr Ser Ser Phe Ser Phe
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 485 490 495
 Tyr Ser Thr Met Pro Glu Ser Ile Gln Tyr Ile Arg Gln Lys His Gly
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 60 Ala Ile Gln Trp Asp Gly Asp Phe Thr Glu Gln Ala Gln Cys Ala Lys

515 520 525

Thr Lys Phe Trp Lys Lys Val Arg Tyr His Met Pro Pro Arg Arg Tyr
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5 Pro Ala Ser Pro Pro Val Gln Leu Leu Gly His Thr Pro Arg Ile Pro
545 550 555 560

10 Gly